

OBJECTIVES: Research has shown that a direct suggestion for a patient to schedule an appointment encourages patients to attend their appointments more regularly, which has a direct correlation with improved outcomes. The study's objectives were to determine the relationship between telephone/mail intervention and clinical pharmacist appointment adherence rates; and whether patients who saw a clinical pharmacist ≥ 3 more times had significantly different HbA1c levels compared to those who did not see a clinical pharmacist. **METHODS:** This was a retrospective review of a central Texas community health center outpatient electronic medical record from 9/1/2009–1/13/2012. Included patients were adult (18–80 years) type 2 diabetes mellitus patients with HbA1c > 9 . Patients with working telephone numbers were contacted. Those who could not be reached via telephone (e.g., no working number or no answer) or who did not schedule an appointment after the telephone intervention were contacted by mail. Contact method type (telephone, mail, telephone and mail), number of clinical pharmacist visits, HbA1c levels (6 months prior and one year post initial appointment) and demographics were collected. Appointment adherence was calculated as kept visits/total number of patients in each contact method. **RESULTS:** Patients ($N=132$) were 53.3 ± 12.4 years, 52.3% female, and 72.7% Hispanic. Patients' appointment adherence rates (raw numbers/rate) for telephone (52/67;77.6%) were higher than mail (14/43;32.6%) and telephone and mail (4/22;18.2%) contact methods. Although not significant ($p=0.1067$), the change in HbA1c from baseline to follow-up (third HbA1c) decreased more with patients ($N=40$) who visited the pharmacist ≥ 3 times (-2.4 ± 2.2) compared to patients ($N=24$) who did not visit their pharmacists (-1.5 ± 2.3). **CONCLUSIONS:** Healthcare practitioners should consider calling or mailing type 2 diabetes patients with uncontrolled diabetes to increase appointment adherence and help patients get better control of their diabetes. Patients who saw their clinical pharmacists ≥ 3 times had a 2.4% drop in HbA1c.

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REAL-WORLD MANAGEMENT OF DIABETES IN SHANGHAI MINHANG DISTRICT

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OBJECTIVES: The objective was to analyze the disease management of diabetes in Shanghai Minhang district and to provide evidence for improving management practices in the future. **METHODS:** The program screened for diabetes in 12 community health centers with totally 943 thousands population, built up an information system of Electronic Health Record (EHR), and conducted various forms of follow-up visits and disease management with different time spans according to patients' diabetes situation. **RESULTS:** There were 43,709 diabetes patients managed during the study period from October 2008 to September 2009, including Type1 diabetes (T1DM), Type2 diabetes (T2DM), impaired glucose tolerance (IGT), and impaired fasting glucose (IFG) patients. Based on the last follow-up visit during the study period, 82.91% of managed diabetes patients monitored blood sugar regularly, while only 1.50% did not monitor at all. The percentage of patients who monitored diet completely according to doctor's suggestion was 81.37%. 92.91% of type 1 diabetes patients were taking medication and the percentage of patients using insulin was 36.32%. The percentage of type 2 diabetes patients using insulin is only 12.37%. Based on the last follow-up visit during the study period, the average fasting plasma glucose (FPG) was 7.05 ± 1.91 mmol/L and the average postprandial plasma glucose (PPG) was 8.64 ± 3.29 mmol/L. The percentage of the patients whose blood sugar level was considered to be ideal, fair, and poor was 36.12%, 32.53% and 31.34% respectively. As with HbA1C level, the number was 67.27%, 20.08% and 12.65%, although the percentage of HbA1C recorded in the system was relatively low. **CONCLUSIONS:** The management of diabetes in Shanghai Minhang district performed well in terms of blood sugar monitoring and diet monitoring. There was need, however, to improve exercise involvement. The blood sugar control was not ideal from clinical perspective, suggesting needs to improve diabetes management for blood sugar control.

PDB90

ATTITUDES AND SOCIO-DEMOGRAPHIC FACTORS ASSOCIATED WITH THE ADHERENCE TO DIET AND EXERCISE IN DIABETIC PATIENTS

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OBJECTIVES: Diet and exercise are key elements along with pharmacological treatment to attain adequate glycemic control in diabetic persons. The aim of this study is to identify the socio-demographic factors and attitudes associated with the following of diet and exercise plans in the treatment of diabetic patients at the Mexican Institute of Social Security (IMSS). **METHODS:** Data from the institutional health survey, encoprevenimss 2010, was used to test the statistical relationship between socio-demographic variables and adherence to diet and exercise plans in the treatment of diabetic patients aged 20 years and older. Two binary logistic regression models were constructed to identify personal attitudes and socio-demographic variables associated with the decision of the patient whether to follow the recommendations. **RESULTS:** 31% of the patients reported fully adhering to the prescribed diet, 25% adhered partially and 8% did not adhere to it; furthermore 27% of the patients reported fully complying with the exercise recommendations, 16% complied partially and 18% did not comply. At a level of significance of 5%, no statistically significant relationship between following diet and exercise plans and gender was found, with p -value = 0.072 and 0.424 respectively. In contrast, a statistically significant relationship with age groups was obtained, p -value = 0.000. The results from the logistic regression models show that the main predictors for whether patients would follow recommendations for diet and exercise were personal attitudes. Lack of interest or motivation regarding the importance of these

recommendations increases the probability of poor adherence. With improved education, the probability of greater adherence to these recommendations increases, while patients who work are less likely to exercise or follow the diet plan. **CONCLUSIONS:** Health programs and activities aiming to motivate patients to follow diet and exercise plans should be designed with special emphasis on diabetic patients who work.

PDB91

SYSTEMATIC REVIEW OF DIABETES DISEASE MANAGEMENT INTERVENTIONS

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OBJECTIVES: To improve the health outcomes and reduce costs of employees with diabetes, many employers are initiating diabetes disease management interventions. Given the variety of programs and lack of definitive guidelines reported in the literature, identifying the most appropriate strategy can be challenging. To contribute to employers' understanding of diabetes disease management programs and determine which are most likely to be successful, this review sought to assess the interventions reported in the literature. **METHODS:** A systematic review of PubMed, Embase and Cochrane was performed. Publications reporting the outcomes of diabetes disease management interventions were identified. Accepted publications were abstracted into an evidence table and included in the data interpretation. **RESULTS:** In total, 37 publications met the inclusion criteria and were included in the analysis. Nine distinct categories of diabetes management interventions were identified and assessed: 1) counseling by healthcare provider; 2) group treatment management sessions; 3) education/educational materials; 4) telephone/telemedicine support; 5) web-based support; 6) self-management support; 7) pharmacist intervention; 8) physician education/support and 9) provision of medication or testing supplies. **CONCLUSIONS:** All of the diabetes disease management interventions identified by this systematic review were associated with significantly improved health outcomes, suggesting that patients will benefit from any strategy undertaken. Combinations of multiple interventions demonstrated the best clinical outcomes. It was not possible, however, to determine which interventions would be most effective, given a lack of direct comparisons and potential reporting biases.

PDB92

THE EVOLUTION OF ORAL ANTI-DIABETES MEDICATION USE IN TAIWAN (1999-2009)

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OBJECTIVES: The expenditures for oral anti-diabetic medications have grown markedly over the last decade. This study examined the patterns of use and expenditures of individual anti-diabetic drug classes between 1999 and 2009. **METHODS:** We obtained a 0.2% sample of monthly ambulatory claims from Taiwan National Health Insurance. We assessed volume (DDD/patient/quarter) and government reimbursed costs (costs/patient/quarter) for each antidiabetic drug group over 11 years. **RESULTS:** Between 1999 and 2009, the number of diabetic prescription (patient) increased steadily at an average rate of 12.2% per year. Utilization of oral anti-diabetic drugs increased from 246.05 ddd/patient in 1999_Q1 to 334.28 ddd/patient in 2003_Q2, then began to decrease; this change was due to a marked reduction of sulfonylureas (from 235.88 ddd/patient [79.16% of total DDDs] in 2003_Q2 to 140.37 ddd/patient [58.15% of total DDDs] in 2009_Q4). Use of biguanides was relatively stable over the study period (average rate 61.56 ddd/patient; 23% of the market; 646.53 NT\$/patient). In 2004_Q2, there was clear shift in use from an older glizalide (account for 48.40% of sulfonylureas in 2004_Q2) to a newer agent, glimepiride (24.12%). Rosiglitazone's use (70.37% of thiazolidinediones) dropped rapidly from 2004_Q2 due to the safety concern of cardiovascular risk. The total costs of anti-diabetic medications increased from NT\$1931.91/patient in 1999_Q1 to NT\$3446.95/patient in 2004_Q2, then began to subsequently a downward trend (NT\$2380.50/patient in 2009_Q4), primarily due to a substantial reduction in thiazolidinediones (1,100.57 NT\$/patient [29.92% of total costs] and 2004_Q2 to 569.63 NT\$/patient [23.92% of total costs] in 2009_Q4). **CONCLUSIONS:** Sulfonylureas and biguanides, generally recommended as first-line therapies, dominated the Taiwan market for diabetic management (86%–100% of total DDDs) over the last decade. Uptake of newer, more expensive agents, namely thiazolidinediones and alpha-glucosidase inhibitors, was small. Our results suggest the utilization pattern of oral anti-diabetic medications in Taiwan is overall consistent with clinical guidelines.

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IMPACTS OF DRUG REIMBURSEMENT RATE REDUCTIONS ON USE OF ORAL ANTI-DIABETIC MEDICATIONS IN TAIWAN: AN INTERRUPTED TIME SERIES STUDY

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OBJECTIVES: Rapid growth of pharmaceutical costs is a major health care issue in all countries. Taiwan has implemented several drug reimbursement rate reductions since April 2000. This research focuses on changes in use of oral antidiabetic medications following the November 2006 price regulation. **METHODS:** We obtained a 0.2% sample of monthly ambulatory claims from Taiwan National Health Insurance for January 2006 through August 2007. We examined 179 products in seven ATC categories of oral antidiabetics reimbursed, classified as either affected